International Journal of Physics
and Research (IJPR)
ISSN(P): 2250-0030; ISSN(E): 2319-4499
Vol. 5, Issue 2, Apr 2015, 13-18

THEORY OF PULSE PHENOMENON IN ANNIHILATION AND HILBERT SPACE OF ATOM

SUGATO GHOSH

Calcutta Institute of Technology, West Bengal University of Technology, West Bengal, India

ABSTRACT

Quantum Superposition kitten into the decoherence state of atom into the atomic mesoscopic state of Schrodinger Cat distinct with the response of pulse analog. The Schrodinger cloud will be appeals of its wave growth in the coherence into the spin qu-bit dynamic annihilation as a functional interpretation of two generating state with quantum moment into zero spin and quantum spin analog. It's dispersion with pulse has to be decompose with its finite rank. I also find the annihilation of Schrodinger cloud pulse into L^p, L^q space Hilbert. The sequence of pulse response will have to be determining into the Pulse conjugate and pole conjugate with its complex transfer function.

KEYWORDS: Pulse Analog, Spin, Hilbert Space

INTRODUCTION

Quantum superposition "Smeared" between two or more distinct value. The world microscopic being distinguished interaction of atoms with photons to interact at the sub nuclear level. The quantum superposition principle to macroscopic systems a great amount of conceptual difficulty as pointed out 1935 by celebrated Einstein-Podolsky –Rosen [1] and Schrödinger's cat [1] paradoxes. For experiment [2], an unfortunate cat is placed in a quantum superposition of being dead and alive (correlated with a single radioactive atom that has and has not decayed). The state of system can be represented by the entangled quantum mechanical wave function

$$\Psi=\frac{|☺\uparrow>+|☹\downarrow>}{\sqrt{2}} \qquad (1)$$

Where |☺> and |☹> refer the state of a live and dead Cat and |↓> and |↑> refer to the internal states of an atom that has and has not radioactively decayed. This situation defies our sense of reality because our only observation is live or dead cats and has to be expected that cats is either alive or dead independent the observation[3]. Schrodinger at paradox is a classic illustration of conflict between the existence of quantum existence of quantum superposition and our real world experience of observation and measurement.

Although superposition states such as Schrödinger cat do not appear in the macroscopic world, there is great interest in the realization of "Schrodinger Cat" like sate of mesoscopic system and system have both macroscopic and microscopic features. In this context, the "cat" is generated to represent a physical system whose attributes are normally associated with classical concept such as the distinguishable position of a particle (instead of the state of livelihood of real cat). The creation of a mesoscopic "Schrodinger cat" the atom prepared in quantum superposition of two spatially separated but localised position. In analogy to Schrodinger's original proposition given equation (1) we created the following state

$$\Psi=\frac{|x_1>|\uparrow> + |x_2>|\downarrow>}{\sqrt{2}} \tag{2}$$

Where $|x_1>$ and $|x_2>$ denotes classical –like wave packet state corresponding to separated spatial positions of the atom and $|\uparrow>$ and $|\downarrow>$ refer to distinct internal electronic quantum state of atom [3].

Decoherence is commonly interpreted as a way of quantifying the elusive boundary between classical and quantum worlds and almost always precludes the existence of macroscopic Schrodinger cat states except at extremely short time scale [4,5] may allow controlled studies of quantum decoherence and the quantum classical boundary.

The non classical quantum decoherence into the Schrodinger Cloud [6] is the phase interpretation of the superposition state function of wave. The pulse continuum [7] is in the space continuum in the universe system. The interpretation is into the orbit space with supermative vibration [8], with the photon transformation Π/2 phase shift into the strong active zone and transfer into the weak pulse transformation, total 3Π/2 to the transfer magnetic pulse transformation [8]. The atom in the state of mesoscopic Schrodinger Cat state allow to the controlled the coherence of interferometer phase Φ with the pulse ΄ϒ with the energy transition state e,g mixing photon transformation [9] in the atomic scale of |n> with the anolog 000,010,001 gate operative pulse into the continuum anolog $\begin{bmatrix} \Upsilon_{xyz,011} & \Upsilon_{yzx,110} & \Upsilon_{zxy,101} \\ \Upsilon_{yzx,011} & \Upsilon_{zxy,110} & \Upsilon_{xyz,101} \\ \Upsilon_{zxy,011} & \Upsilon_{xyz,110} & \Upsilon_{yzx,101} \end{bmatrix}$

The equation of pulse atom quanta transformation

$(n_1>0,\ 1>n_2)$[Optical geometric dimension of mass body (m)]

$$X \begin{bmatrix} \Upsilon_{xyz,011} & \Upsilon_{yzx,110} & \Upsilon_{zxy,101} \\ \Upsilon_{yzx,011} & \Upsilon_{zxy,110} & \Upsilon_{xyz,101} \\ \Upsilon_{zxy,011} & \Upsilon_{xyz,110} & \Upsilon_{yzx,101} \end{bmatrix} + \Upsilon_1 \left[p_{1_{(0\sim\frac{\Pi}{2})}} + p_{2_{(\frac{\Pi}{2}\sim\Pi)}} + p_{3_{(\Pi\sim 3\Pi/2)}} \right] \left[\tau_{(t_1,t_2)}\right] = (\mathrm{n}|_0 > n|_{3\Pi/2} >)\ \mathrm{X} \frac{\partial \tau_{(t_1,t_2)}}{\partial t_1} (1 > , n <) + (\mathrm{n}|_{3\Pi/2} > n|_0 >)\ \mathrm{X} \frac{\partial \tau_{(t_1,t_2)}}{\partial t_2} (< n, 0 >) \tag{2}$$

Where p_1 ,p_2,p_3 are the pulse phase into the energy transition and $\tau_{(t_1,t_2)}$ pulse cloud and n_1 and n_2 is the atomic analog into the energy transition scale.

Lasers

A significant source of decoherence in many experiments stems from Laser- driven transitions. For qu-bit based on optical transition, the fundamental limit is caused by the radiative lifetime of the excited state. For hyperfine qu-bits driven by two-photon stimulated – Raman transitions, the fundamental limit is caused by spontaneous emission from the weakly coupled optically excited states[10,11]. However, in practice, decoherence is often dominated by classical noise in the laser beams caused by phase noise in the lasers themselves (particularly important for optical qu-bits) or phase noise caused by fluctuations in the beam path length. In Sugato inter phase[12] in the decoherence stage will give the high growth wave optic in the transaction of qu-bit the beam path length will be give as functional interpretation of as a functional annihilation of optic laser with the analog pulse [000,010,001] as quantum qu-bit computer sensation.

Schrodinger Cloud in Hilbert Field Space

The state decoherence in the Space Hilbert into a complete space in the sense that if a sequence of elements $\{f_n\}$ of æ with its abstract element f,g,h satisfies the condition $\| f_n - f_m\| \to 0$ for $m,n \to \infty$ then there exist an element f* of æ

such that $\| f_n - f^* \| \to 0$ for $n \to \infty$ [13]. The Mesoscopic Schrodinger Cats may provide an interesting testing ground for the controversial theory of quantum measurement [2]. At the core of the historical issue is the question of the universality of quantum mechanics [2]. The Minkowski inequality

$$\| f + g \| \leq \| f \| + \| g \| \tag{3}$$

Though the Space Hilbert into the decoherence state wave Schrodinger Cloud [6] the quantization energy growth into with respect to time t the field coherence analog with pulse Ɏ into the micro-wave supermative phase transformation to give response of finite potential gain. The appeal of creating a Schrodinger cat state in a harmonic oscillation wave packet preserves the separation of the superposition [6]. The state of superposition of wave growth into the decoherence the dispersion of quantum moment into an analog spin with into the dipole-dipole interaction of Rydberg atom [12] will have a coherence into spin qu-bit into the dynamic annihilation.

The functional variation the spin analog into the non-classical quantum mechanics with function f with the least critical point in the dispersion of quantum into the trajectories x (t) as the mesoscopic Schrodinger Cat with time

$$\int_0^T L\,(x, \dot{x}\,) \tag{4}$$

As a functional interpretation L (x_1, x_2) where the x_1 and x_2 is the dispersion ionization into the two generating state with quantum moment into zero spin and quantum spin analog. The boundary is $\| x_1 + x_2 \| \leq \| x + \dot{x} \|$ into the limit with non harmonic to harmonic into the Schrodinger cloud wave growth in the state of decoherence.

Decomposition of Dispersion with Pulse

Let Pulse Ɏ be a single value of the transformation Space S. Let us considered the resolving transformation of atom dispersion ς for the regular values of wave packet Ḱ with its boundary growth 0 to ∞ with to pulse Υ_0 and Υ_∞ with its analog Ɏ by the multipliers λ_0 as a spin function d(λ), I denoted $\frac{1}{d(\lambda)}$ about λ_0 in a non-harmonic oscillation whose first term contain $(\lambda - \lambda_0)^{-\gamma}$. The entire series of $d\left(\begin{matrix} i \\ j \end{matrix}; \gamma\right)$ $\Psi_{\lambda,i}$ and H_λ are major zed in the ordinary sense, respectively in the norm by convergent numerical series, uniformly in every peak value of wave growth interior with the resonance pulse Ɏ from this follows that, I can rearrange them in powers of $(\lambda - \lambda_0)$ and multiply them in the Cauchy Sense. I thus obtain the decomposition

$$\acute{K}_1 = \frac{A(\lambda - \lambda_0)}{(\lambda - \lambda_0)} + \mathrm{B}\,(\lambda - \lambda_0) \tag{5}$$

Whereas the linear transformation $A(\lambda - \lambda_0)$ a polynomial in $(\lambda - \lambda_0)$ of degree at most (ξ – 1), and the linear transformation $B(\lambda - \lambda_0)$ is represented for small values of (λ-λ_0) by an entire series in $(\lambda - \lambda_0)$ convergent in the norm.

$$A\,(\lambda - \lambda_0) = A_0 + (\lambda - \lambda_0)A_1 + \ldots\ldots\ldots\ldots\ldots\ldots + (\lambda - \lambda_0)^{\xi - 1} A_{\xi - 1} \tag{6}$$

$$B(\lambda - \lambda_0) = B_0 + (\lambda - \lambda_0)B_1 + \ldots\ldots\ldots\ldots\ldots + (\lambda - \lambda_0)^n B_n \tag{7}$$

Furthermore, A (λ-λ_0) and its coefficient A_k are of finite rank.

Annihilation of Schrodinger Cloud Pulse into L^p, L^q Space Hilbert

The functional interpretation of Schrodinger wave [6] cloud in the space Hilbert with the pulse will be give into

the weak convergence in the space L^p, $1\leq p \leq \infty$ by saying that the sequence $\{f_n\}$ in L^p convergence weak by to f in L^p if for every g of conjugate space L^p[14]

$$(f_n, g)=\int_c \ f_n(x)g(x)dx \to (f,g) \tag{8}$$

These case also be expressed in linear functional just as in the p=2 coherence state of function annihilation of wave chaotic will be give the product (f,g) with f fixed in L^p space Hilbert with the interpolation of space growth although the coherence growth although the coherence growth in the decoherence as a f fixed annihilation of in L^p space and g as variable space field with magnetization with two pole function where as g is a variable dense coherence of wave cloud in L^q it will be a analogous of those non-classical wave growth with the resonance of pulse. In such case least space domain with in the $1\leq q\leq \infty$ with all response of pulse with its linear integral function in L^q.

Now we consider the Holder's inequality with the appeal of space domain as a f(x) with coherence and with its utility growth with real value 1.

$$|F_{(x_k)} \ - \ F_{(x_{k-1})} \ |^p \ \leq \int_{x_{k-1}}^{x_k}(x_k - x_{k-1})^{p-1} \int_{x_{k-1}}^{x_k} |f(x)|^p dx \tag{9}$$

Now the space phase is bounded with the space Hilbert L^p and analog with space growth L^q as it conjugate space [14].

Although, a least domain of space pulse conjugation B^p with a non-tribunal lapping interval (α_K,β_K), with the domain of weak and strong space annihilation and it applying Holders inequality for finite real value domain of coherence with field magnate although the sum of all energy value with its binomial Series [6].

$$\sum \ \ |F(\beta_k) - F(\alpha_k) \leq \left[\sum \frac{|F(\beta_k)-F(\alpha_k)|^p}{(\beta_k-\alpha_k)^{p-1}}\right]^{\frac{1}{p}} [\sum(\beta_k - \alpha_k)]^{\frac{p-1}{p}} \leq B[\sum(\beta_k - \alpha_k)]^{\frac{p-1}{p}} \tag{10}$$

Where the function F(x) is always absolute resonance with pulse Υ with every derivative F(x) of which it is the indefinite integral. The space annihilation with its all sequence of $f_n(x)$ as a sequence of decomposition of the interval (a,b) with domain with its as a incremental ratio.

$\frac{F(\beta)-F(\alpha)}{\beta-\alpha}$ for each transformation of pulse into the atom phase.

Transformation in the field Geometry into Pulse Continuum

In the space Hilbert the phase coherence into the decoherence the atom O^+ with the increment with least functional interpretation of annihilation of the T as a characteristic element of the space domain L^p and L^q weak convergent space. It is a single value function of field where $\mu\neq 0$ in the covariance of subspace with its integral annihilation of function T, though with pulse $\left(I_0 - \frac{T}{\mu_\Upsilon}\right)$ is admits a phase shift into decoherence state where I_0 is the field interpolation of sequence of pulse into the atom ionization state. So as i and j is the conjugate field current into the complex vector into the phase dispersion of Schrodinger Cat with its discrete vector $x=(x_1 \ldots\ldots\ldots x_n)$ of an equivalent system of atom into the pole transformation O^+, O^{++}, O^-, O^{--}phase into the state function high decoherence state of discrete decomposition of atom into zero coherence of null dipole interaction

$$\sum_{k=1}^{n}\left(t_{i,k\Upsilon_i} - \mu_\Upsilon \delta_{i,k\Upsilon_j}\right)=0 \tag{11}$$

Where (i=1, 2,……….., j=-1,-2,…………)

In order that this system admits a non-zero solution it is necessary and sufficient that its determinant be zero. But since this determinant is a polynomial in μ_{Υ} of precisely the degree n, it becomes zero for at least one real or complex value. A linear transformation of a finite dimensional space therefore always has at least one characteristic value.

But we know that if the matrix $\left(t_{i,k_{\Upsilon_1}}\right)$ of pulse resonance of its transformation and T is the symmetric of annihilation. But the parity of pole with a conjugate self adjoining symmetry with the quadratic from with the coherence of phase act as a quadratic interpolation into the linear transformation T annihilation with all real value of atom phase into the sequence of pulse into the phase conjugate and pole conjugate with it complex transformation function. Such as the function

T$[(f_{\Upsilon}+g),(f+g_{\Upsilon})]$ - T$[(f_{\Upsilon}-g),(f-g_{\Upsilon})]$ + i (T$(f_{\Upsilon}+ig),(f+ig_{\Upsilon})$) – i [T$(f_{\Upsilon}-ig)$,(f-g_{Υ})]=4T$(f_{\Upsilon},g_{\Upsilon})$ (12)

CONCLUSIONS

In the space Hilbert the wave growth has to be a dynamic annihilation into the two interpretation of spin function with it finite rank. It has to be annihilated L^p, L^q space and has to be determine pulse and pole conjugate into the complex transfer function.

REFERENCES

1. A. Einstein, B. Podolsky, N. Rosen, Phys. Rev **47** 777(1935)
2. E. Schrodinger, Naturwissenschafen **23,**807(1935);Translation in (6)
3. C. Monroe, D. M. Meekhof, B. E. Kig, D. J. Wineland, A "Schrodinger Cat" Superposition state of an atom Science vol **272**,1996
4. W. H. Zurek, Phys Today **44**, 36 (October 1991)
5. D. F. Walls and G. J. Milburn, Phys Rev, A31 2403(1985); C. M. Savage and D. F. Walls, ibid **32** 2316 (1985); M. J. Collett, ibid **38** 2233 (1988)
6. S. Ghosh, Theory of Schrodinger Cloud Equation (IJPR) Vol-3 Issue4 oct 2013, 43-54
7. S. Ghosh, Theory of Relativity on Pulse Quantum Phenomena (IJPR) ISSN-2250-0003 Vol.3 Issue5, Dec 2013, 21-32
8. S. Ghosh, Theory on pulse phenomenon in Decoherence stage of atom and its chemical affinity (IJPR) ISSN-2250-0030 Vol -4 Issue-1, 1 Feb 2014, 45-58
9. C. Sayrin, I. Dotesnko, S. Gleyzes, M. Brune, J. M. Raimond and S. Haroche **14** (2012)115007
10. Ozeri R et al 2005 Hyperfine Coherence in the Presence of Spontaneous Photon Scattering Phys Rev. Lett **95** 030403
11. Ozeri R. et al 2007 Errors in tarpapered ion quantum gates due to spontaneous photon scattering Phys Rev. A **75** 042329

12. S. Ghosh, Sugato Pulse acted on Rydberg Atoms (IJPR) Vol-5 Feb 2015,17-24
13. Hilbert, D-Grundzuge einer allgemeinen Theorie der Linearer Integraleichungen, (Leipzing, 1912)
14. RIESZ, F-B. Sz. Nagy-[1] Uber Kontraktionen des Hilbertschen Ranmes, Acta Sci Math Szeged, **10** (1943),202-205
15. S. Ghosh, Sugato Pulse act on circular Rydberg atom Vol-5, Issue-2, Apr2015, 1-6